



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,374	01/26/2001	Kalpesh Dhanvantrai Mehta	10559-177001 / P8237	6479

20985 7590 10/20/2004  
FISH & RICHARDSON, PC  
12390 EL CAMINO REAL  
SAN DIEGO, CA 92130-2081

EXAMINER

ZHEN, LI B

ART UNIT PAPER NUMBER

2126

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/771,374

Applicant(s)

MEHTA, KALPESH  
DHANVANTRAI

Examiner

Li B. Zhen

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 4,5,9,10 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,5,9,10 and 14-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 4,5,9,10 and 14-20 are pending in the current application.

***Response to Arguments***

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4,5,9,10 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,067,557 to Hegde [cited in previous office action] in view of U.S. Patent No. 5,884,051 to Schaffer et al. [hereinafter Schaffer].**

5. As to claim 18, Hegde teaches the invention substantially as claimed including a method, comprising:

assigning an access value [assigning to each of the plurality of processes a count value; col. 4, lines 55 – 67] and a relative priority value to each of a plurality of computer processes [registering, within a computer, the plurality of processes, each

Art Unit: 2126

having an assigned priority from highest priority to lowest priority; col. 4, lines 55 – 67] which request access to a shared computer resource [a process or a group of processes are guaranteed to get their share of CPU time; col. 4, lines 33 – 45], where the priority value can be high priority or low priority [each having an assigned priority from highest priority to lowest priority; col. 4, lines 55 – 67];

first providing access to processes whose access value represents high priority [determining which process should be executed based on ranking; col. 5, lines 12 – 20] and whose access value represents that access should still be granted [executing the process determined; col. 5, lines 12 – 20], and after granting each access, adjusting an access value [count value is decremented] associated with said each access, to indicate that additional access has been granted [process currently assigned the highest count value is executed and, in step 38, its count value is decremented by one; col. 6, lines 57 – 67];

determining that all high priority requests have access values that indicate that no additional access should be granted [if any of the count values are greater than zero (step 42), and if the currently executing process is no longer the process with the highest count value (step 44), the system loops back; col. 7, col. 1, lines 1 – 6];

responsive to said determining, providing access to low priority requests whose access values represent that access should be granted, and adjusting access values after granting the access [the process having the current highest count value is executed, and its count value is decremented by one; col. 7, lines 1 – 23]; and

Art Unit: 2126

after determining that both the high priority requests and low priority requests each have access values that represent no further access should be granted [Once all of the processes have been completed; col. 7, lines 7 – 19], starting a new access with new access values and priority values [system loops back to step 30 to register new processes; col. 7, lines 7 – 19].

6. As to access cycles, Hegde teaches each of the steps takes place based on timing signals from system timer [col. 6, lines 57 – 67] but does not specify access cycles.

However, Schaffer teaches shared resource [col. 5, lines 15 – 27] access based on priority levels [programmable fixed priority and dynamic priority; col. 5, lines 29 – 43] during access cycles [col. 12, lines 47 – 64].

7. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of access cycles as taught by Schaffer to the invention of Hegde because this provides for a fair arbitration scheme when several masters all having equal master dynamic priority levels need to equally share the bandwidth of the bus [col. 10, lines 55 – 60 of Schaffer].

8. As to claim 19, this is a product claim that corresponds to method claim 18; note the rejection to claim 18 above, which also meets this product claim.

9. As to claim 20, this an apparatus claim that corresponds to method claim 18; note the rejection to claim 18 above, which also meets this apparatus claim. As to the

Art Unit: 2126

additional limitations, Hegde as modified teaches a controller device [controller 103, Fig. 1; col. 4, lines 46 – 61 of Schaffer], having a first port for connecting to a shared resource [port 116, Fig. 1; col. 4, lines 46 – 62 of Schaffer], and at least one second port for connecting to a plurality of different processes which are requesting access to the shared resource [col. 5, lines 29 – 43 of Schaffer] and a memory operating to store access values [col. 11, lines 1 – 29 of Schaffer].

10. As to claims 4, 9 and 14, Hegde as modified teaches at least one of the computer processes is an isochronous process [col. 7, lines 54 – 56 of Hegde].

11. As to claims 5, 10 and 15, Hegde as modified teaches at least one of the computer processes is an asynchronous process [col. 8, lines 15 – 16 of Hegde].

12. As to claim 16, Hegde as modified teaches the controller is a memory controller [controller 103, Fig. 1; col. 4; lines 46 – 61 of Schaffer].

13. As to claim 17, Hegde as modified teaches the shared memory resource is a shared memory bank [col. 11, lines 1 – 29 of Schaffer].

**Conclusion**

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,363,445 to Jeddeloh teaches a method of bus arbitration using requesting device bandwidth and priority ranking.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen  
Examiner  
Art Unit 2126

lbz  
October 17, 2004

  
MENG-AI AN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100